REMARKS

By the above amendment, new dependent claims 21-24 have been presented, which are dependent from independent claims 1, 8, 13 and 18, respectively, and, more particularly, sets forth the feature that the substrate having the orientation film thereon is heated during the irradiation of polarized UV light to the orientation film so as to facilitate optical orientation of the orientation film for the liquid crystal display device.

As pointed out at page 16, lines 11-21 of the specification, in the case of adding (optical orientation) the orientation controllability to an orientation film formed on the substrate of the liquid crystal panel, the orientation film is softened by irradiation of polarized light while providing a heater for heating the substrate to heat the orientation film, which in turn facilitates the occurrence of a structural change or reaction in an organic high polymer film due to irradiation of such polarized light. Thus, irradiating the light while heating becomes an effective means for efficiently performing the intended optical orientation. As described at page 27, line 24 to page 28, line 2, the X-Y stage for moving the substrate may comprise a heater device to thereby effectuate irradiation of polarized light while heating the substrate up to 80°C. In such case, the time taken for polarized light irradiation was half of that

required when no heating was employed. Thus, in accordance with the present invention, the heating of the substrate is carried out during irradiation of the orientation film with polarized UV light so as to facilitate optical orientation of the orientation film, and applicants submit that such features as recited in the independent and dependent claims is not disclosed or taught in the cited art, as will become clear from the following discussion.

The rejection of claims 1, 8, 13 and 18 under 35 U.S.C. §103(a) as being unpatentable over Chigrinov et al (U.S. 5,389,698); the rejection of claims 2 and 3 under 35 U.S.C. §103(a) as being unpatentable over Chigrinov et al (U.S. 5,389,698); the rejection of claims 4, 9 and 14 under 35 U.S.C. §103(a) as being unpatentable over Chigrinov et al (U.S. 5,389,698) in further view of Nakabayashi et al (U.S. 5,710,608); the rejection of claims 5, 10 and 15 under 35 U.S.C. §103(a) as being unpatentable over Chigrinov et al (U.S. 5,389,698); the rejection of claims 6, 11, 16 and 19 under 35 U.S.C. §103(a) as being unpatentable over Chigrinov et al (U.S. 5,389,698); the rejection of claims 7, 12 and 17 under 35 U.S.C. §103(a) as being unpatentable over Chigrinov et al (U.S. 5,389,698); and the rejection of claim 20 under 35 U.S.C. §103(a) as being unpatentable over Chigrinov et al (U.S. 5,389,698); such rejections are traversed, and

reconsideration and withdrawal of the rejections are respectfully requested.

At the outset, as to the requirements to support a rejection under 35 U.S.C. §103, reference is made to the decision of In re Fine, 5 USPQ 2d 1596 (Fed. Cir. 1988), wherein the court pointed out that the PTO has the burden under §103 to establish a prima facie case of obviousness and can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. As noted by the court, whether a particular combination might be "obvious to try" is not a legitimate test of patentability and obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. As further noted by the court, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

Furthermore, such requirements have been clarified in the recent decision of In re Lee, (Fed. Cir. 00-1158, 1/18/02) wherein the court in reversing an obviousness rejection indicated that deficiencies of the cited references cannot be

remedied with conclusions about what is "basic knowledge" or "common knowledge". The court pointed out:

> The Examiner's conclusory statements that "the demonstration mode is just a programmable feature which can be used in many different device[s] for providing automatic introduction by adding the proper programming software" and that "another motivation would be that the automatic demonstration mode is user friendly and it functions as a tutorial' do not adequately address the issue of motivation to combine. This factual question of motivation is immaterial to patentability, and could not be resolved on subjected belief and unknown authority. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher."... Thus, the Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion. (emphasis added)

In setting forth the rejection based upon Chigrinov et al, the Examiner notes that "Chigrinov et al discloses in example 3, pre-heating the substrate to about 80-90 degrees C and then exposing the polymer layer with UV light through a polarizer." (emphasis added) The Examiner indicates that although Chigrinov et al does not specifically disclose heating the substrate during the process of irradiating a polymer layer, it was well known and obvious to do so in order to control the rate of polymerization, with the Examiner further indicating that the temperature to which the substrate

was heated and the duration for which this temperature was maintained are result effective variables and result effective variables have been judicially determined to be obvious to one of ordinary skill in the art and determination of these variables for best results would have been obvious to one of ordinary skill in the art. Applicants submit that the Examiner's position is contrary to the disclosure of Chigrinov et al, and represents a hindsight reconstruction attempt of the present invention. More particularly, as pointed out in In re Lee, supra, the factual quest of motivation is material to patentability, and could not be resolved on subjective belief and unknown authority and that it is improper, in determining whether a person of ordinary skill would have been lead to this combination of references simply to "[use] that which the inventor taught against its teacher".

Turning to example 3 at col. 3, lines 1-13 of Chigrinov et al, such example describes the formation of a layer on a glass plate by a spin coating process and that the "layer was then dried in air for about 20 minutes and then heated to about 80°-90°C. for about 20 seconds. After this pre-treatment, the layer was exposed for about 100 seconds to irradiation with a light of an HgHB lamp at a wavelength λ of about 365 nm through a Glan Thomson polarizer." (emphasis added) Applicants note that although the Examiner contends that "Chigrinov et al discloses in example 3, pre-heating the

substrate to about 80-90"C" (emphasis added), the description in Chigrinov et al does not disclose heating of the substrate, but only describes rather heating of the layer. Moreover, the specific description in Chigrinov et al provides no disclosure of heating of the layer during irradiation with UV light, but rather specifically suggests that no heating of the layer is effected when the layer is irradiated with UV light. That is, the specific disclosure of Chigrinov et al is that the layer is heated in pre-treatment step for about 20 seconds and that after this pre-treatment, the layer is exposed to irradiation. Applicants submit that Chigrinov et al does not provide any disclosure or teaching of heating of a substrate on which an orientation layer is formed and heating the substrate while irradiating polarized UV light to the orientation film or layer, i.e. simultaneously with the irradiation, which feature is recited in each of the independent and dependent claims of this application and is contrary to the disclosure of Chigrinov et al and not rendered obvious thereby. Thus, applicants submit that all claims patentably distinguish over Chigrinov et al in the sense of 35 U.S.C. §103, and should be considered allowable thereover.

As to the Examiner's contentions that it was well known and obvious to heat the substrate in order to control the rate of polymerization, applicants note that heating for polymerization is utilized so as to harden the polymer as a

result of polymerization. In contradistinction, in accordance with the present invention, heating of the substrate is effected while irradiating the orientation layer with UV light in the manner defined, so as to facilitate optical orientation of the orientation film for the liquid crystal display device, and such features are not disclosed or taught by Chigrinov et al in the sense of 35 U.S.C. §103, such that all claims patentably distinguish over Chigrinov et al in the sense of 35 U.S.C. §103 and should be considered allowable thereover.

As to the combination of Chigrinov et al and Nakabayashi et al, irrespective of the types of lasers disclosed by Nakabayashi et al, this parent does not overcome the deficiencies of Chigrinov et al as pointed out above, and applicants submit that all claims patentably distinguish over this proposed combination of references in the sense of 35 U.S.C. §103 ane should be considered allowable thereover.

With respect to the newly added claims 21-24, which define the feature that the substrate is heated at a temperature no greater than 80°C during the irradiation of the polarized UV light to the orientation film formed on the substrate so as to facilitate optical orientation of the orientation film for the liquid crystal display device, applicants note that not only does Chigrinov et al fail to disclose the simultaneous heating of a substrate while irradiating polarized light to the orientation film formed on

the substrate so as to facilitate optical orientation of the orientation film, Chigrinov et al does not disclose heating at a temperature no greater than 80°C with Chigrinov et al describing a pre-treatment process, wherein the layer is heated at a temperature greater than 80°C. As such, it is apparent that the newly added dependent claims recite further features not disclosed or taught by Chigrinov et al and the other cited art.

In view of the above amendments and remarks, applicants submit that all claims present in this application patentably distinguish over the cited art in the sense of 35 U.S.C. §103 and that all claims should be considered allowable thereover. Accordingly, issuance of an action of a favorable nature is courteously solicited.

To the extent necessary, applicant's petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 01-2135 (501.36702CX2) and please credit any excess fees to such deposit account.

Respectfully submitted,

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